No. 7200026

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Asgrow Seed Company

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF seventeen YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

BEAN

'Bonanza Wax

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of* Washington *this* 21st *day of* May *in the year of our Lord one thousand nine hundred and* seventy-four

Attest:

L. N. Rollin
Commissioner
Plant Variety Protection Office

Earl L. Butz
Secretary of Agriculture

Exhibit A Origin and Breeding History

Bean Bonanza Wax PV#72026

Bonanza Wax originated from a greenhouse cross made in 1961 between Resistant Kinghorn and White Seeded Tendercrop. This material was reselected on a single plant basis from 1962 through 1964 or through F2-F4. It was planted for a mass increase in 1965 and at the end of the growing season was given the experimental designation XP Wax 10. It was placed in trial and further increased in 1966. Trial evaluation and seed stock increase was continued in 1967. The trial evaluation program continued through 1971 where the variety was named Bonanza. It was brought to our attention in 1973 that Rogers Brothers had registered in Holland Gallatin 50 under the name Bonanza and that it was necessary to change the name of our variety from Bonanza to Bonanza Wax. This was officially done in August 1973.

Bonanza Wax has been uniform and stable from 1966 onward and has the normal mutation to rate to flat pods and strings. We know of no other off-types which occur to a significant degree.

Exhibit B Botanical Description

Bean Bonanza Wax PV#72026

Bonanza Wax is a wax podded snapbean with a relatively wide range of adaptation exceeding most other wax varieties. In maturity it is 2-3 days later than Earliwax and 2 days earlier than Midas and is about the same maturity as Resistant Kinghorn wax. The plant is a determinate erect bush about 41 cm tall with a 46 cm spread. It has a compact branching habit. It has a wirey relatively thin stalk. Flower and pod positions are high and concentrated. Leaves are medium sized, wrinkled, glossy, medium thick, medium green in color with slight pubescence. Flowers are white and are borne on average size racemes.

Pods are golden yellow with little tendency to retain green color. They are about 12 cm long, 85 mm wide and 85 mm thick. The cross section of the pod is round. Pods are straight to slightly curved, without constrictions, smooth, and sparsely pubescent. The pod surface is shiny. Pod flesh is light and firm. Pods are stringless and low in fiber. Rate of seed development is medium. The quality of the pod is good and color retention is quite good.

Seed are white and shiny with no other color present and hilar ring is absent. Seed are elliptical, kidney type, and round in cross section. Seed are relatively small; 100 seed weigh 20 grms. Seed are 11 mm long, 5 mm wide, and 5 mm thick.

Bonanza wax is resistant to common and NY 15 strains of Bean Virus 1. We know of no other resistance to diseases, insects, or physiological disorders.

Exhibit D Data Indicative of Novelty

Bean Bonanza Wax PV#72026

Bonanza Wax is most nearly like Earliwax and Midas. Compared to Earliwax Bonanza Wax is 2-3 days later, has a shorter pod (11.7 cm vs 12.1 cm), a slightly slenderer pod, a taller plant, smaller seed, 120/oz vs 105/oz, and a somewhat slower rate of seed development.

Compared to Midas, Bonanza Wax is about 2-3 days earlier, has a shorter plant, a shorter pod (11.7 cm vs 12.4 cm) but is otherwise quite similar except that it appears to have a wider range of adaptation, yielding well in areas where Midas has not been successful. Bonanza Wax is more cold tolerant than Midas in the seedling stage with a more vigorous plant performance in early spring.

FORM GR-470
(12-15-72)

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782

FORM APPROVED
OMB NO. 40-R3712

AMENDED APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

INSTRUCTIONS: *See Reverse.*

1. VARIETY NAME OR TEMPORARY DESIGNATION	2. KIND NAME	FOR OFFICIAL USE ONLY	
Bonanza Wax	Bean	PV NUMBER 72026	
3. GENUS AND SPECIES NAME	4. FAMILY NAME (*Botanical*)	FILING DATE 8/27/71	TIME A.M. 11:00
Phaseolus Vulgaris	Leguminosae	FEE RECEIVED $ 250.00 / $ 250.00 / $ 250.00	BALANCE DUE $ — / $ — / $ —
	5. DATE OF DETERMINATION 1965		

6. NAME OF APPLICANT(S)	7. ADDRESS (*Street and No. or R.F.D. No., City, State, and ZIP Code*)	8. TELEPHONE AREA CODE AND NUMBER
Asgrow Seed Company	Kalamazoo, Michigan 49001	Area Code 616 382-4000

9. IF THE NAMED APPLICANT IS NOT A PERSON, FORM OF ORGANIZATION: (*Corporation, partnership, association, etc.*)	10. STATE OF INCORPORATION	11. DATE OF INCORPORATION
Corporation	Delaware	March 22, 1968

12. Name and mailing address of applicant representative(s), if any, to serve in this application and receive all papers:

~~John A. Batcha~~
~~Asgrow Seed Company~~
~~Kalamazoo, Michigan~~ 49001

DR. ALLEN R. TROTTER
9625-190-1
ASGROW SEED COMPANY
KALAMAZOO, MICHIGAN 49001

13. CHECK BOX BELOW FOR EACH ATTACHMENT SUBMITTED:

- [X] 13A. Exhibit A, Origin and Breeding History of the Variety (*See Section 52 of the Plant Variety Protection Act.*)
- [X] 13B. Exhibit B, Botanical Description of the Variety
- [X] 13C. Exhibit C, Objective Description of the Variety
- [X] 13D. Exhibit D, Data Indicative of Novelty
- [X] 13E. Exhibit E, Statement of the Basis of Applicant's Ownership

14A. Does the applicant(s) specify that seed of this variety be sold by variety name only as a class of certified seed? (*See Section 83(a). If "Yes," answer 14B and 14C below.*) [ ] YES [X] NO

14B. Does the applicant(s) specify that this variety be limited as to number of generations? [ ] YES [X] NO

14C. If "Yes," to 14B, how many generations of production beyond breeder seed? [ ] FOUNDATION [ ] REGISTERED [ ] CERTIFIED

The applicant declares that a viable sample of basic seed of this variety will be deposited upon request before issuance of a certificate and will be replenished periodically in accordance with such regulations as may be applicable.

The undersigned applicant(s) of this sexually-reproduced novel plant variety believes that the variety is distinct, uniform, and stable as required in Section 41 and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant is informed that false representation herein can jeopardize protection and result in penalties.

Original
August 16, 1971
(DATE)

Asgrow Seed Company
by, John A. Batcha
(SIGNATURE OF APPLICANT) 1

Amended
August 31, 1973
(DATE)

Allen Trotter
(SIGNATURE OF APPLICANT)

INSTRUCTIONS

GENERAL: Send an original copy of the application, exhibits and $250.00 fee to U.S. Dept. of Agriculture, Agricultural Marketing Service, Grain Division, 6525 Belcrest Road, Hyattsville, Maryland 20782. (See Section 180.175 of the regulations and rules of practice.) Retain one copy for your files. All items on the face of the form are self-explanatory unless noted below.

ITEM

5 Insert the date the applicant determined that he had a new variety based on the definition in Section 41 (a) of the Act and decision is made to increase the seed.

13a First, give the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method. Second, give the details of subsequent stages of selection and multiplication. Third, indicate the type and frequency of variants during reproduction and multiplication and state how these variants may be identified. Fourth, provide evidence on stability.

13b First, give any special characteristics of the seed and of the plant as it passes through the seedling stage, flowering stage and the fruiting stage. Second, describe the mature plant and compare it with a similar commercial variety grown under the same conditions, and indicate the differences.

13c A supplemental form will be furnished by the PVPO to describe in detail a variety for each kind of seed.

13d Provide complete data indicative of novelty. Seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty may be submitted. Seeds submitted may be sterile.

13e Indicate whether applicant is the actual breeder, the employer of the breeder, the owner through purchase or inheritance, etc.

FORM APPROVED. OMB NO. 40-R3712

FORM GR-470-12
(11-15-72)

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
GRAIN DIVISION
HYATTSVILLE, MARYLAND 20782

EXHIBIT C
(Bean)

AMENDED **OBJECTIVE DESCRIPTION OF VARIETY** (SEE LETTER OF 8/31/73 FROM ASGROW)

BEAN (*PHALEOLUS VULGARIS*)

INSTRUCTIONS: See Reverse.

NAME OF APPLICANT(S)
Asgrow Seed Company

ADDRESS (Street and No. or R.F.D. No., City, State, and ZIP Code)
9620-190-1
Kalamazoo, Michigan 49001

FOR OFFICIAL USE ONLY

PVPO NUMBER
72026

VARIETY NAME OR TEMPORARY DESIGNATION
Bonanza Wax

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g. [0][8][9] or [0][9]) when number is either 99 or less or 9 or less.

1. TYPE:

[1] 1 = SNAPBEAN 2 = GREEN SHELL 3 = DRY EDIBLE 4 = MULTIPURPOSE

2. SEASON AND REGION OF ADAPTABILITY IN THE U.S.:

[2] Grows best during: 1 = SPRING 2 = SUMMER 3 = FALL 4 = WINTER

[6] Best adopted in: 1 = NORTHWEST 2 = NORTHCENTRAL 3 = NORTHEAST 4 = SOUTHEAST 5 = SOUTHWEST 6 = MOST REGIONS

3. MATURITY (*Days from seeding to first harvest*):

[6][4] GREEN PODS [ ][ ] GREEN SHELLS [ ][ ] DRY SEEDS

[ ][ ] NO. DAYS EARLIER THAN ---------- [ ]
[0][2] NO. DAYS LATER THAN ---------- [3]

1 = TENDERCROP 2 = KENTUCKY WONDER 3 = KINGHORN WAX
4 = WHITE KIDNEY 5 = MICHELITE 62 6 = DWARF HORTICULTURAL
7 = BUSH BLUE LAKE 8 = OTHER (*Specify*)

4. PLANT:

[1] 1 = DETERMINATE, ERECT BUSH 2 = DETERMINATE, SPRAWLING BUSH 3 = DETERMINATE, SEMIPOLE 4 = INDETERMINATE, POLE

[0][4][6] CM. HEIGHT OR LENGTH OF VINE FROM PRIMARY LEAF NODE

[0][0][5] NUMBER PRIMARY BRANCHES PER MAIN STALK

[5][2] CM. SPREAD

[0][6] NUMBER INTERNODES ON MAIN STALK BETWEEN PRIMARY LEAF AND BASE OF TERMINAL INFLORESCENCE

[1] Branching habit: 1 = COMPACT 2 = OPEN

[0][2] CM. LENGTH OF FIRST INTERNODE ABOVE PRIMARY LEAF

[0][7] MM. STALK DIAMETER ABOVE FIRST TRIFOLIATE LEAF

[2] Main stalk: 1 = BRITTLE 2 = WIREY [2] 1. STOUT 2. THIN

[2] Flower position:
[2] Pod Position:
1 = LOW, CONCENTRATED 2 = HIGH, CONCENTRATED 3 = SCATTERED

5. LEAVES:

[2] 1 = SMOOTH 2 = WRINKLED [2] 1 = DULL 2 = GLOSSY [2] Thickness: 1 = THIN 2 = MEDIUM 3 = THICK

[2] Size: 1 = SMALL (*Earliwax*) 2 = MEDIUM 3 = LARGE (*Tendercrop*) [12] CM. PETIOLE LENGTH (*To basal leaflets of first trifoliate leaf*)

[2] Tip shape of center leaflet: 1 = ROUNDED 2 = TAPER POINTED 3 = SHARP POINTED

[2] PUBESCENCE - Dorsal:
[2] PUBESCENCE - Ventral:
1 = NONE 2 = SLIGHT 3 = CONSIDERABLE

[2] Color: 1 = LIGHT GREEN (*Bountiful*) 2 = MEDIUM GREEN 3 = DARK GREEN (*Bush Blue Lake*)

6. FLOWERS:

[1] Color: 1 = WHITE 2 = CREAM 3 = PINK 4 = LILAC 5 = PURPLE 6 = OTHER *(Specify)*_____

[2] Racemes: 1 = LONG 2 = MEDIUM 3 = SHORT [6] NUMBER FLOWERS PER RACEME

7. FRESH PODS: *(Edible maturity, averages for 10 pods)*

[5] Color: 1 = LIGHT GREEN *(Bountiful)* 2 = MEDIUM GREEN *(Tendergreen)* 3 = DARK GREEN *(Wade)* 4 = LIGHT YELLOW *(Brittlewax)* 5 = GOLDEN YELLOW *(Cherokee Wax)* 6 = GREEN-RED VARIAGATED *(Horticultural)* 7 = OTHER *(Specify)* _____

[1][2] CM. LENGTH [8][5] MM. WIDTH *(Between sutures)* [8][5] MM. THICKNESS [1][0] WIDTH/THICKNESS X 10

[4] Cross section pod shape: 1 = FLAT 2 = OVAL 3 = CREASEBACK 4 = ROUND

[2] Curvature: 1 = STRAIGHT 2 = SLIGHTLY CURVED 3 = CURVED

[2] Pubescence: 1 = NONE 2 = SPARSE 3 = CONSIDERABLE

[1] Constrictions: 1 = NONE 2 = SLIGHT 3 = DEEP

[2] Spur: 1 = STRAIGHT 2 = SLIGHTLY CURVED 3 = CURVED

[1] Surface: 1 = SHINY 2 = DULL

[1] Surface: 1 = SMOOTH 2 = BLISTERED

[1] Pod flesh: 1 = LIGHT 2 = DARK

[1] Pod flesh: 1 = FIRM 2 = WATERY

[14] MM. SPUR LENGTH

[2] Suture string: 1 = PRESENT 2 = ABSENT

[1] Fiber: 1 = NONE 2 = SPARSE 3 = CONSIDERABLE

[2] Seed development: 1 = SLOW 2 = MEDIUM 3 = FAST

[5] NUMBER OF SEEDS PER POD

[ ] NUMBER PODS PER PLANT *(Once over harvest)*

[ ] NUMBER MARKETABLE PODS PER PLANT *(Once over harvest)*

[1] Machine harvest: 1 = ADAPTED 2 = NOT ADAPTED

8. SEED COAT COLOR:

[1] 1 = MONOCHROME 2 = POLYCHROME

[1] 1 = SHINY 2 = DULL

[1] Primary color: 1 = WHITE 2 = YELLOW 3 = BUFF 4 = TAN 5 = BROWN 6 = PINK 7 = RED 8 = PURPLE 9 = BLUE 10 = BLACK 11 = OTHER *(Specify)*_____

[ ] Secondary color:

[ ] Color pattern: 1 = SPLASHED 2 = MOTTLED 3 = STRIPED 4 = FLECKED 5 = DOTTED

[ ] Secondary color location: 1 = HILAR RING 2 = HILAR SURFACE 3 = STROPHIOLE 4 = MICROPYLE 5 = SIDES 6 = DORSAL SURFACE 7 = NOT RESTRICTED TO ANY AREA 8 = COMBINATION OF LOCATIONS *(Specify)*_____

[1] Hilar ring: 1 = NOT PRESENT 2 = NARROW 3 = BUTTERFLY SHAPED

[1] Vein-like under coat pattern: 1 = ABSENT 2 = PRESENT

9. SEED SHAPE AND SIZE:

[1] Hilum view: 1 = ELLIPTICAL 2 = OVAL 3 = ROUND

[3] Side view: 1 = OVAL 2 = ROUND 3 = KIDNEY 4 = TRUNCATE ENDS

[4] Cross section: 1 = ELLIPTICAL 2 = OVAL 3 = CORDATE 4 = ROUND

[20] GM. WEIGHT PER 100 SEEDS

[4] Classification: 1 = PEA 2 = MEDIUM 3 = MARROW 4 = KIDNEY 5 = PINTO

[0][5] MM. WIDTH *(Dorsal to ventral)*

[0][5] MM. THICKNESS *(Side to side)*

[1][1] MM. LENGTH

[1][0][0] WIDTH/THICKNESS X 10

10. ANTHOCYANIN: *(1 = Absent 2 = Present):*

[1] FLOWERS [1] STEMS [1] PODS [1] SEEDS [1] LEAVES

11. DISEASE RESISTANCE *(0 = Not tested; 1 = Susceptible; 2 = Resistant):*

[0]	RUST *(Specify race)* _____	[0]	ANGULAR LEAF SPOT
[0]	BACTERIAL WILT	[2]	COMMON BEAN MOSAIC
[1∅]	ANTHRACNOSE see letter 21 Sept 1977 167	[0]	YELLOW BEAN MOSAIC
[0]	SOUTHERN BEAN MOSAIC	[0]	FUSARIUM ROOT ROT
[0]	CURLY TOP	[2]	N.Y. 15 BEAN MOSAIC
[0]	POWDERY MILDEW	[0]	BEAN MOSAIC VIRUS 4
[0]	HALO BLIGHT	[0]	FUSCOUS BLIGHT
[0]	ALFALFA MOSAIC VIRUS	[0]	ALFALFA MOSAIC VIRUS 2
[0]	POD MOTTLE VIRUS	[0]	RED NODE VIRUS
[0]	ROOT KNOT NEMATODE	[0]	OTHER *(Specify)* _____

12. INSECT RESISTANCE: *(0 = Not tested; 1 = Susceptible; 2 = Resistant)*

[0]	APHIDS	[0]	LEAF HOPPERS
[0]	POD BORER	[0]	LYGUS
[0]	THRIPS	[0]	WEAVILS
[0]	SEED CORN MAGGOT	[0]	OTHER *(Specify)* _____

13. PHYSIOLOGICAL RESISTANCE: *(0 = Not tested; 1 = Susceptible; 2 = Resistant)*

[0] HEAT [0] COLD [0] DROUGHT [0] OTHER *(Specify)* _____

REFERENCES: The following publications may be used as a reference in completing this form:

1. Beans of New York. Vol. 1 Part II of Vegetables of New York. U.P. Hedrick et al. J. B. Lyon Company Albany, N.Y. 1931.
2. Yarnell, S. H., Cytogenetics of the Vegetable Crops IV. Legumes. Bot. Rev. 31:247 - 330. 1965.
3. USDA Yearbook of Agriculture. 1937.

COLOR: Nickerson's or any recognized color fan may be used to determine the colors.

EXHIBIT E

Statement of the Basis of the Applicant's Ownership

Bean - Bonanza

Asgrow Seed Company

August 16, 1971

The variety for which Plant Variety Protection is hereby sought was developed by Dr. W. H. Pierce, retired, an employee of Asgrow Seed Company. By agreement between the employee and Asgrow Seed Company, all rights to any invention, discovery, or development made by the employee while employed by Asgrow Seed Company were assigned to Asgrow Seed Company, with no rights of any kind retained by the employee.